



P. 12

**NVIRO CLEANTECH PLC**

Code: NVR
Share price: 6p
Market cap: £4m
12 month high/low: 51.25p/2.25p
www.nvirocleantech.com

AIM listed Nviro Cleantech has licensed exclusive rights to the Vertus Reductive Thermal Processing technology, 'Vertus RTP', which was invented by Edward Someus and developed with EU funding of more than €4 million. Vertus RTP cleans low quality coal and biomass to produce high-grade anthracite-like fuel.

Vertus RTP separates fuel and non-fuel components from low grade coal and biomass through exposure to an environment of high temperature and low oxygen pyrolysis. It reduces sulphur, mercury and chlorine emissions by between 97% and 99% and produces a clean, concentrated CO₂ stream for sequestration. The capital cost of the technology, which is based on a unique rotary kiln design, is estimated to be over 70% lower than new scrubber installations. By separating volatiles and carbon, Vertus RTP permits the use of biomass fuel sources such as rice husk, which are high in volatiles. The Vertus RTP technology can also extract coal 'gangues', a waste coal material.

In contrast to the technology of companies such as Evergreen or White Energy, which focus on the removal of moisture from low grade coals near the mine site, the Vertus RTP technology can be applied close to the power station. Nviro's business model is to be a service provider to power generators, processing low grade coal and biomass on-site.

Nviro announced its first China joint venture clean coal client in May 2008. The Balama Nviro joint venture was formed with the Shenyang Coal Trade Group (SCTG) to build and operate Vertus RTP units for the treatment of high sulphur coal from ten SCTG mines in Northern China. These ten mines produce 16 million tons of coal products each year. The SCTG 'gangues' stockpile, of more than 20 million tons, will also be treated.

Last year Nviro announced a contract with Cincinnati Bulk Terminals LLC (CBT) for a 25 year agreement to treat low grade high sulphur coals from mines in the Illinois Basin. A Vertus RTP plant was being constructed at CBT and was due for completion in early 2009, with revenue expected to follow on after commissioning. However, a number of developments at the end of 2008 made the project uneconomic, at least for now. These developments included the suspension of the Clean Air Act by the



Coal stockpile at Macarthur Coal's Moorvale Mine
© Macarthur Coal Ltd

US Supreme Court in 2008, resulting in uncertainty about the market; a collapse in the price differential between higher quality compliant coals and the high sulphur non-compliant coals in the region; a sharp fall in the value of sulphur credits traded on the emissions market at the end of 2008; and lower natural gas prices, which caused industrial dual-fuel boiler operators to switch from coal to gas.

The Obama Administration is expected to reinstate a more vigorous set of rules for sulphur – and also for mercury. However, the CBT plant is now being re-configured. The associated costs and delay have pushed out the date of anticipated revenues at Nviro for a year, to 2010. The company had a cash balance of just £6.6 million at the beginning of March this year and has taken measures to preserve cash and address operating costs.

WHITE ENERGY CORPORATION

Code: ASX:WEC
Share price: A\$1.66
Market cap: A\$255m
12 month high/low: A\$3.95/A\$1.17
www.whiteenergyco.com

Australian Stock Exchange listed White Energy holds the exclusive rights to a technology which speeds up the maturation of lower grade coals by removing moisture and improving energy levels. The Binderless Coal Briquetting (BCB) clean coal upgrading technology was developed by a consortium which included the Commonwealth Scientific and Industrial Research Organisation (CSIRO), K.R Komarek Inc., TraDet Inc. and The Griffin Coal Mining Company Pty Ltd.

The BCB technology uses combustion gases as a heat source in a continuous process. The coal dust is compressed and bound into briquettes, resulting in coal with an energy content of between 30% and 200% higher than low rank feedstock coal (depending on the original moisture content of the feedstock coal). The coal burns more efficiently, with lower emissions of carbon and other pollutants. Residual pollution is reduced as BCB upgraded coal maintains the natural characteristics of the feedstock coal, which typically has ash content of less than 6%, compared to typical levels of 12% to 20% for high rank bituminous thermal coals. Levels of dust are also reduced and the risk of spontaneous combustion is considerably lower. The reduced moisture levels also result in a reduction of up to

30% in load volumes and associated transport costs.

White Energy plans to roll out BCB technology plants in one million tonnes per annum (MTPA) modules. The company recently completed construction of its first MTPA clean coal plant at the Tabang mine in East Kalimantan, Indonesia. The project is a joint venture between White Energy and the mine owner, PT Bayan Resources TBK, a large Indonesian coal group.

The joint venture company, PT Kaltim Supacoal (KSC), expects to be a low cost producer of thermal grade coal when the plant is operating at full capacity. It is estimated that the cost of the upgraded BCB coal will be lower than the mining costs for most thermal coal producers. The KSC joint venture plans to increase its capacity to 15 MTPA.

The revenue stream from the KSC joint venture will be White Energy's first steady revenue stream. The company has agreements elsewhere to develop coal upgrading facilities including:

An agreement with Theiss, a division of Australian Stock Exchange quoted Leighton Industries, with respect to its South East Asian coal mining activities;

An agreement with Buckskin Mining Company (owned by Kiewit Corporation) to develop facilities of up to eight MTPA facilities in Wyoming;

A letter of intent with Datang International Power Company for a production facility of up to ten MTPA in Inner Mongolia;

A joint venture agreement with Cargill Corporation owned Black River Asset Management relating to the exploitation of the BCB technology in Africa;

A development agreement with Mongolyn Alt Corporation and IB Daiwa Corporation with respect to lignite deposits at Aduunchuluun, Mongolia.

White Energy is in the process of a merger with US listed company, Asia Special Situation Acquisition Corp (ASSAC), a special purpose acquisition vehicle which is listed on the NYSE Alternext Exchange (AMEX: CIO). The transaction, by which White Energy would have a controlling share in ASSAC in exchange for the sale to ASSAC of commercialisation rights for the BCB clean coal upgrading technology, is expected to provide White Energy with up to A\$170 million in funding to grow its business.